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To study the peristome and annulus, etc.; if the operculum still remains, remove it with forceps or dissecting needle, carefully saving it on the slide; cut the capsule lengthwise with the scissors and spread out each half on the slide, one outside up and the other the inside up; or the capsule can be first split and the pieces of operculum removed afterwards. This prevents any loss of minute parts. If the spores obscure the parts, a minute's boiling over the lamp will scatter them. The walls of the capsule will often curl up so strongly as to make it necessary to split them with the dissecting needles to cause them to lie flat.

WHAT ARE MOSSES?

By A. J. Grout and Marie L. Sanial.

THERE are at least three different classes of plants which popularly pass under the name of mosses: true mosses, Hepaticæ or liverworts, and lichens. The lichens are gray, yellow, brown and various other colors and shades, but are seldom of true plant green; then, too, they have no true stem and leaves, but may consist of ascending or even pendant (in the case of tree lichens, "hair moss") stem-like divisions or of a flattened thalloid expansion either membranaceous or coriaceous in structure.

There are two species of lichens to which the name *moss* has been popularly and erroneously applied. The first the hair "moss" (*Usnea*), consists of strong, greenish-gray filaments and resembles a small mane or wig. It clothes the branches of trees and undershrubs in dark woods and is well known to every hunter of squirrels, from its amazing similarity to the tail of a hiding gray squirrel.

The second is the reindeer "moss" (*Cladonia rangiferina*), the great boon of the Laplander. It simulates a grayish crust-like mass of much-branched, rootless and leafless hollow shrubs in miniature, their height being seldom more than two inches.

The liverworts are more likely to be mistaken for mosses, as they belong to the same branch or subdivision (*Bryophyta*) of the vegetable kingdom, and are very closely related. The foliose hepatics have a stem and leaves, and when sterile some forms may be mistaken for true mosses, even by one who has a considerable knowledge of the plants, especially the alpine Gymnomitrium, which has closely appressed but emarginate leaves and julaceous, erect branches.

In general the leafy hepatics can be distinguished from the mosses by the flattened appearance of the plant, due to a marked differentiation of the upper (dorsal) and the lower (ventral) surface. The leaves also are apparently arranged in two rows overlapping like shingles (imbricated). An exception to this is Gymnomitrium before mentioned. The leaves of hepatics consist of a single layer of almost regularly hexagonal cells, without even the rudiment of a mid-rib (except in one or two rare forms), and they are often bifid or multifid.

If in fruit, the leafy hepatics can easily be recognized by the dark, globular, four-valved capsule borne on a slender, delicate, white fruitstalk and having spiral elaters mixed with the spores.

The true mosses, on the other hand, possess stem and leaves arranged in ranks and while often flattened have a much less marked dorso-ventral differentiation. The leaves are never bifid or multifid and the leaf-cells are usually much elongated, seldom regularly hexagonal and in three-fourths of the species possess well-defined mid-rib.

No moss except the rare *Andreæa* has a capsule splitting into four valves but nearly all moss capsules open by a lid (*operculum*), and most have a characteristic fringe of teeth (*peristome*) about the mouth. No true moss has spiral elaters mixed with its spores. In color, mosses, excepting the peat mosses, are nearly all of some shade of green ranging from almost black to a light yellow green.

Any good text-book of botany will give these distinctions with more detail and usually with helpful illustrations.

THE CORD MOSS AND ITS ALLIES.

THERE are several common and interesting allies of the Dicranums that would make profitable study, but for variety's sake we will turn our attention to a moss with a double peristome and other characters not before treated of in THE BRYOLOGIST.

The cord moss (*Funaria hygrometrica*) is so called because of the twisted seta which is very hygroscopic and untwists when moist. Its Latin name, *Funaria*, is derived from *funis*, a rope. This twisting of the seta is not peculiar to this group, however, but is common in many other groups. The cord moss is to be found everywhere, being especially abundant in waste places and on soil recently burned over. I have seen it completely cover the